

Rejections under 35 U.S.C. § 102

The Examiner rejected claims 12-16 and 18-22 under 35 U.S.C. § 102(e) as being anticipated by the Kim patent. Specifically, the Examiner asserted that the silicon spacers disclosed in the Kim patent are “the same as applicant’s non-dielectric stringers.”

Applicant respectfully disagrees with the Examiner’s assertion and, accordingly, traverses this rejection. Anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). In order to maintain a proper rejection under section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984).

As known to those skilled in the art, and as discussed in detail in the above-referenced application, e.g., pages 13 and 14, “stringers” are small, undesirable residuals that are typically left in creases on a substrate after an etching process. “Spacers,” on the other hand, are desirable features that are specifically designed and fabricated for various purposes by those of ordinary skill in the art. In short, in the context of the rejected claims, these two terms are *not* the same, equivalent, or interchangeable.

In regard to independent claim 12, none of the references of record disclose or suggest the removal of a portion of a layer of non-dielectric material, leaving stringers of the dielectric material in the creases on the integrated circuit, and converting these stringers of non-dielectric

material into a dielectric material. As stated by Applicant beginning on page 13, line 29, the complete removal of these residual stringers is difficult without damaging the structure or topology of protruding features of the integrated circuit. However, in the prior art, a lose-lose situation existed because these residual non-dielectric stringers, such as polysilicon stringers, may cause undesirable gate leakage. See page 14, lines 16-21. The subject matter set forth in claim 12 solves this problem by converting the stringers of non-dielectric material into a dielectric material. Because none of the prior art of record, either alone or in combination, discloses or suggests the method set forth in independent claim 12, claims 12-17 are patentable over the prior art of record. Accordingly, Applicant respectfully requests allowance of claims 12-17.

In regard to independent claim 18, none of the references of record, either alone or in combination, disclose or suggest the attempted removal of non-dielectric material from creases where the removal method leaves residual non-dielectric material in some of the creases, along with the conversion of the residual non-dielectric material into a dielectric material. Applicant has amended claims 18, 22, and 23 to clarify that this residual non-dielectric material is undesirable, unlike the desirable spacers disclosed in the Kim patent that are specifically designed and engineered to form a particular structure which performs a specific purpose. As discussed above in regard to claim 12, Applicant has solved a problem by converting the undesirable non-dielectric material that may adversely affect the ultimate functioning of the circuit into an innocuous dielectric material. Since none of the prior art of record discloses the problem, much less the solution to the problem as set forth in independent claim 18, claims 18-23 are patentable over the prior art of record. Accordingly, Applicant respectfully requests allowance of claims 18-23.

Rejections under 35 U.S.C. § 103

The Examiner rejected claims 17 and 23 under 35 U.S.C. § 103(a) as being obvious over the Kim patent in view of the Matusoka patent. Specifically, the Examiner has relied on the Matusoka patent to teach that silicon nitride sidewalls may be used instead of the silicon oxide sidewalls disclosed in the Kim patent.

As discussed above, the Kim patent is not directed to the methods recited in independent claims 12 or 18. Similarly, the Matusoka patent is not related to problems arising from undesirable non-dielectric residuals remaining after an etching step. Therefore, even if the Examiner can combine these references as asserted, the combination still fails to disclose or suggest that a nitridizing or an oxidizing method may be used to convert undesirable non-dielectric residue, such as stringers, into innocuous dielectric material, as claimed. Indeed, those skilled in the art attempt to *prevent* formation of these undesirable residuals through improved etching techniques, rather than rendering the undesirable residuals harmless after formation as disclosed and claimed by Applicant. Therefore, Applicant respectfully submits that claims 17 and 23 are patentable over the prior art of record.

The Examiner also rejected claim 1 for various reasons. However, claim 1 was included only for filing purposes, and it has been canceled without prejudice. Therefore, these rejections are moot.

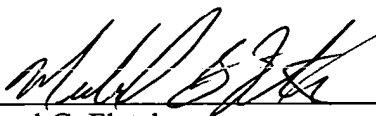
If the Examiner believes that a telephonic interview will help speed this application toward issuance, Applicant invites the Examiner to contact the undersigned at (281) 970-4545.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Applicant hereby provides a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Applicant authorizes the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 13-3092: Order No. MICS:0015--2/FLE (93-118.02).

Respectfully submitted,

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